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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/872,989 | 06/01/2001 | Daniel C. Biederman | CISCP208/3890 | 3150 |

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| EXAMINER |
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OSMAN, RAMY M

| ART UNIT | PAPER NUMBER |
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2157

DATE MAILED: 05/16/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/872,989

Applicant(s)

BIEDERMAN ET AL.

Examiner

Ramy M. Osman

Art Unit

2157

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 07 March 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-39 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-39 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 April 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____

DETAILED ACTION

Status of Claims

1. This communication is responsive to the amendment filed on March 7, 2005. Claims 1-29 are pending. The rejections cited are as stated below.

Drawings

2. The drawings were received on 4/22/2005. These drawings are accepted.

Claim Objections

3. Claim 1 objected to because of the following informalities: On line 7, change "...node if present until" to "... node, if present, until" (insert two commas). Appropriate correction is required.

Claim Rejections - 35 USC § 101

4. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. Claim 34 rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. "carrier wave" is not a tangible medium and is therefore non-statutory.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. **Claims 1-5 and 7-12 rejected under 35 U.S.C. 102(e) as being anticipated by anticipated by Ketcham et al. (US Patent No 6,721,334).**

8. In reference to claims 1,17 and 33-35, Ketcham teaches a method, a router, a computer program product and a corresponding apparatus for combining data segments, the method comprising:

at a combiner node, establishing a flow between a first node and the combiner node (column 4 lines 12-21 & 53-63);

at the combiner node, receiving data segments from the first node that are destined for a second node; at the combiner node (column 2 lines 35-41 and column 7 lines 10-30);

at the combiner node, combining and buffering the received data segments with previously buffered data segments from the first node if present until a first condition is met; at the combiner node (column 5 lines 51-63 and column 7 lines 20-52);

at the combiner node, sending at least a portion of the combined data segments to the second node when the first condition is met Column 7 lines 10-35 and column 7 line 60 – column 8 line 15);

wherein the received data segments are combined in the combiner node prior to being sent to the second node so as to reduce processing and/or storage resources consumed by the second node (column 2 lines 25-65 and column 7 line 20 – column 8 line 15).

9. In reference to claims 2 and 18, Ketcham teaches a method and router as recited in claims 1 and 17, wherein the first condition is met when a combiner timer expires. (column 5 lines 50-67 and column 7 lines 40-67)

10. In reference to claims 3 and 19, Ketcham teaches a method and router as recited in claim 2 and 19, further comprising:

waiting a predetermined amount of time and then determining whether there is congestion between the combiner node and the second node; and when it is determined that there is congestion increasing or resetting the combiner timer. (column 5 line 53 – column 6 line 52)

11. In reference to claims 4 and 20, Ketcham teaches a method and router as recited in claim 2 and 19, further comprising: when a number of flows received into the combiner node changes, setting the combiner timer based on the number of flows. (column 6 lines 4-55)

12. In reference to claims 5 and 21, Ketcham teaches a method and router as recited in claim 4, wherein the combiner timer is set to a selected one of a plurality of times, wherein each time selection is based on whether the number of flows has reached a particular threshold level (Abstract and column 3 lines 1-35).

13. In reference to claims 7 and 23, Ketcham teaches the method and router as recited in claim 1 and 17, wherein the first condition is met when a data length of at least a portion of the combined data is less than or equal to a window size indicated by the second node, wherein a

Art Unit: 2157

maximum portion of the combined data that will fit within the indicated window size is sent to the second node. (column 7 lines 25-67)

14. In reference to claims 8 and 24, Ketcham teaches the method and router as recited in claim 1 and 17, wherein data that is traveling between the first node and the second node has a first maximum data size and data that is traveling between the combiner node and the second node has a second maximum data size, the first maximum size being substantially smaller than the second maximum data size, wherein the combined data segments sent to the second node have an associated size that is less than or equal to the second maximum data size. (Summary and column 7 lines 25-67)

15. In reference to claims 9 and 25, Ketcham teaches the method and router as recited in claim 8 and 24, wherein the first and second maximum data size are selected from a group consisting of a first and second window size, a first and second maximum segment size, and a first and second maximum transmission unit. (Summary and column 7 lines 25-67)

16. In reference to claims 11 and 27, Ketcham teaches the method and router as recited in claim 1 and 17, wherein the first condition is met when a last segment belonging to a same data group that was fragmented is received, wherein the combined data that is sent to the second node includes all of the segments of the same fragmented data group. (column 6 lines 45-65 and column 7 lines 10-35)

17. In reference to claims 36-39, Ketcham teaches the method, router, computer program product and apparatus as recited in claims 1,17,33 and 35, further comprising:

At the combiner node, establishing a second flow between the second node and the combiner node (column 4 lines 5-25 and column 7 lines 10-30).

Claim Rejections - 35 USC § 103

18. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

19. **Claims 6, 13-16, 22 and 29-32 rejected under 35 U.S.C. 103(a) as being unpatentable over Ketcham et al. (US Patent No 6,721,334) in view of Borella et al (US Patent No 6,643,259).**

20. In reference to claims 6 and 22, Ketcham teaches the method and router as recited in claim 1 and 17 above. Ketcham fails to explicitly teach wherein the first condition is met when a first received data segment includes a field that indicated whether the data segment is important. However, Borella teaches forwarding a packet having a high priority indicating that low delay is required for optimizing data flow in a data network (Abstract and column 6 lines 30-67).

It would have been obvious for one of ordinary skill in the art to modify Ketcham by forwarding packets having a high priority indicating that low delay as per the teachings of Borella for optimizing data flow in a data network.

21. In reference to claims 13 and 29, Ketcham teaches the method and router as recited in claim 1 and 17 above. wherein the method further comprises sending the received data substantially immediately without the first condition being met to the second node when the received data has a relatively high priority (Borella, Abstract and column 6 lines 30-67).

Art Unit: 2157

22. In reference to claims 14 and 30, Ketcham in view of Borella teach the method and router as recited in claim 13 and 29, wherein the received data has a relatively high priority based on information contained in the received data (Borella, Abstract and column 6 lines 30-67).

23. In reference to claims 15 and 31, Ketcham in view of Borella teach the method and router as recited in claim 13 and 30, wherein the received data segments are combined with previously buffered segments having a same priority level as the received data segments and the first condition is met when a timer associated with the same priority expires (Ketcham, Summary and column 5 line 53 – column 6 line 52).

24. In reference to claims 16 and 32, Ketcham in view of Borella teach the method and router as recited in claim 15 and 31, wherein there are a plurality of timers each associated with a different priority level (Ketcham, Summary and column 5 line 53 – column 6 line 52).

25. **Claims 10 and 26 rejected under 35 U.S.C. 103(a) as being unpatentable over Ketcham et al. (US Patent No 6,721,334) in view of Mulligan (US Patent No 6,212,190).**

26. Ketcham teaches the method and router as recited in claim 1 and 17, further comprising:
at the combiner node, receiving data from the second node that is destined for the first node (column 4 lines 5-25 and column 7 lines 10-30).

Ketcham fails to explicitly teach at the combiner node, splitting the received data into a plurality of segments; sending the segments to the first node; and wherein the received data is segmented in the combiner node prior to being sent to the first node so as to reduce processing and/or storage resources consumed by the second node. However, Mulligan teaches routers splitting the received data into a plurality of segments; sending the segments to the first node;

Art Unit: 2157

and wherein the received data is segmented in the combiner node prior to being sent to the first node so as to reduce processing and/or storage resources consumed by the second node

(Abstract, column 2 lines 45-65, column 2 lines 10-30 and column 8 lines 15-45).

It would have been obvious for one of ordinary skill in the art to modify Ketcham by splitting the received data into a plurality of segments; sending the segments to the first node; and wherein the received data is segmented in the combiner node prior to being sent to the first node so as to reduce processing and/or storage resources consumed by the second node as per the teachings of Mulligan for the purpose of generating proper packet sizes to conform to different transmission requirements for different network routes.

27. Claims 12 and 28 rejected under 35 U.S.C. 103(a) as being unpatentable over Ketcham et al. (US Patent No 6,721,334) in view of Chapman et al (US Patent No 6,246,684).

In reference to claims 12 and 28, Ketcham teaches the method and router as recited in claim 1 and 17. Ketcham fails to explicitly teach: when out-of-order data segments are received, buffering the received out-of-order data segments with previously buffered data segments from the first node if present until missing data segments are received; and reordering the out-of-order data segments after missing data segments are received prior to combining the re-ordered data segments with previously buffered data segments. However, Chapman teaches when out-of-order data segments are received, buffering the received out-of-order data segments with previously buffered data segments from the first node if present until missing data segments are received; and reordering the out-of-order data segments after missing data segments are received

Art Unit: 2157

prior to combining the re-ordered data segments with previously buffered data segments (Abstract and column 3 lines 21-55).

It would have been obvious for one of ordinary skill in the art to modify Ketcham so that when out-of-order data segments are received, buffering the received out-of-order data segments with previously buffered data segments from the first node if present until missing data segments are received; and reordering the out-of-order data segments after missing data segments are received prior to combining the re-ordered data segments with previously buffered data segments, as per the teachings of Chapman for the purpose of re-ordering data traffic in a network when packets are received out of order.

Response to Amendment

28. Examiner acknowledges applicants amendment filed 3/7/2005, where applicant amended claims 1,4,5,17,20,21,33 and 35; and added new claims 36-39.

Response to Arguments

29. Applicant's arguments with respect to claims 1-39 have been considered but are moot in view of the new grounds of rejection.

30. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ramy M. Osman whose telephone number is (571) 272-4008. The examiner can normally be reached on M-F 9-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ario Etienne can be reached on (571) 272-4001. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RMO
May 10, 2005


SALEH NAJJAR
PRIMARY EXAMINER